

MNEMONICS

DELINEATED

IN A

SMALL COMPASS

AND

EASY METHOD

FOR THE

BETTER ENABLING

TO

REMEMBER

WHAT IS

Most Frequently WANTED

AND

Most Difficultly RETAINED

OR

RECOLLECTED.

M.DCC.XXXVII.

ADVERTISEMENT.

THE Key to this art (so far as relates to the expressing of numbers by letters) we owe to the ingenious Dr. Grey. What follows may be considered as a Supplement to, and Improvement of his memoria technica: for, most of the articles are what perhaps did not occur to him: and the rest, I think, are reformed to good purpose; particularly those of Weights, Coins, and Measures; of which I have given a full account in less than three pages, whereas the Doctor's (though very defective) amounts to 31. Those who are curious will add such particulars, as they may have most occasion for; in order to lay-up a treasure of useful principles in their heads; for the greatest part of which they must, otherwise, from time to time, have recourse to books; or, where those are not at hand, be disappointed; how-much-soever it may be to their discredit, or prejudice. I need not inform those who have the education of youth, whether in schools or universities, how much something of this nature would expedite the progress of their pupils, and show them to advantage; furnish sometimes with a satisfactory certainty, readiness, and exactness, in things, of which masters themselves, and men of reading, have generally but an imperfect and confused remembrance. I shall only add (to obviate an objection, that may naturally offer itself to such as are unacquainted with things of this nature) that, how difficult and forbidding soever the jargon of this art may appear; nothing will stick more effectually in the memory, when once familiarised by frequent repetition so as to flow into the mind without reflexion.—NB. The Accents denote the first syllable of a Dactyl.

SOLOMON LOWE.



M N E M O N I C S

directions for the better learning to remember.

FIGURES or numbers) THE KEY (express by LETTERS

a e i o u au oi ei ou y	g 100. th 1,000. m 1,000,000.
1 2 3 4 5 6 7 8 9 0	r denotes fractions, as follows:
b d t f l s p k n z	,ro $\frac{1}{4}$: ,iro $\frac{3}{4}$: d,eri 2 $\frac{2}{3}$: ,rag, or.

in **Arithmetic** the
division of the old roman AS; viz. any integer, or whole 2 :
 Uncia, Sext. Quā. Triens. Quinc. Sem. Sept. Bes. Dōdrā. Dext. Dēu.
 AS, parts 12 | dextans 10 | bessis 8 | semissis 6 | triens 4 | sextans 2
 deunx 11 | dōdrans 9 | septunx 7 | quincunx 5 | quadrans 3 | UNCIA 1

reduc'd to) **COINS** (Farthings
 1 E.] Sh-ōk. Cr-ēfy.] N-idz. Ange-ōkz. M-āufy. Gui-bzyk Car-bāzo. Jac-bēg.
 2 H. Ger-f] Bē-li. Sh-abz. * Man-sūps. † Tāl-idēth feil] Sh-aplē. Tal-um
 3 G. Lep-,ārītāu. Dīchāl-aprēf. ōb-u,rau] * Dr-ib. † Stātēr-ado. [dustb.
 4 R. T-,ōipūrāth. † As-t,raz] Sef-p,irf. V-al,rē. Dēn-ib. Sp-oil.] Aūr-ōipū.
 * DRACHM] Hēb-is. Att-ri. Alex-oid—M I N] Att-tig. Itāl-ēkeiz
 † TAL] Att-boukth. Bāb-ētath] Att-ibauth eig. Bab-im āunsth. R-akyth
 † STATER (gold) Att-poil. Cyz- Phīl- Alex-dap. Croef-Dārī-buly.
 † As weighd Ouncēs-ād, U. C-bouz 4 : e ; fouz : a ; lip : -āre ; leis.

sums of **MONEY** or m. of account
 5 (E.) Penn-f. Gr-as. Pound-onfy. (G) T A L. M I N. Ægī-gubfs. † Ant-sy-tag
 6 Bab-ōiz = tuns. Pt-az = aztī. Sūr-al = poil. Tyrian-eiz = fatt.
 7 (R) SESTERCE — rō-ath, dūo, bini nummi — tō-am, duo, bina,
 8 —stertia ; or millia sestertiūm, —above, by the adverbs, as follows :
 9 Bis sestertiūm, or bis ; understanding millia centum (or centena).

ABBREVIATURES Explained : Ægīnea mina, talentum (lin.) 5. Alexandrina drachma, * ; stater, †. Angel, 1. Antiochia min. tal. 5. As, 4. †. Attica drachma, *, mina, *, stater, † ; talentum, †. Aureus denarius, 4. Babylonica min. tal. †. Bekah, 2. Carolus, 1. Croesus stater, †. Crown, 1. Cyzicenus stater, †. Darius stater, †. Denarius, 4. Dichalcos, 3. Drachma, 3. Gerah, 2. Groat c, 5. Guinea, 1. Hebraica drachma, *. Jacobus, 1. Italica mina, *. Lepton, 3. Maneh, 2. Mark, 1. Mina c, *, 5. Noble, 1. Obolus, 3. Penny c, 5. Philippicus stater, †. Pound, 5. Prolemaica min. tal. 6. Romanum talentum, †. Sestertium, 7. Sestertius, 4. Shekel, 2. Shilling, 1. Sportula, 4. Stater, 3. Syria min. tal. 6. Talentum c, 2, 5. Teruncius, 4. Tyria min. tal. 6. Victoriatus, 4.

SYNONYMS, and EQUIVALENTS: Æs, as. Assarium, as. Attica minor mina = antiochica. Attica major mina = tyria. Bigatus, denarius. Centussis, 100 asses. Chalcos, $\frac{1}{2}$ dichalchos. Decussis c, 10 asses. Didrachmon, 2 drachmae. Diobolon, 2 oboli. Dupondius c, 2 asses. Euboea mina = antiochica. Hemiobolon, $\frac{1}{2}$ obolus. Laureat, carolos. Libella, as. Libra (or libra pondo) = mina attica. Mna, mina. Nonussis, 9 asses. Nummus, sestertius. Obolus, $\frac{1}{2}$ noble. Octussis, 8 asses. Pentadrachmon, 5 drachmae. Pondo, v. libra. Quadrans, $\frac{1}{4}$ as, $\frac{1}{4}$ noble. Quadrigatus, denarius. Quadrussis c, 4 asses. Quinarius, victoriatus. Quinquessis c, 5 asses. Rhodia = aeginea. Sembella, semilibella. Semilibella, $\frac{1}{2}$ libella. Semuncia, $\frac{1}{2}$ uncia. Sescuncia, 1 $\frac{1}{2}$ uncia. Sextans c, $\frac{1}{6}$ as. Sextula c, $\frac{1}{6}$ uncia. Solidus, aureus. Tetradrachmon, 4 drachmae. Tetrobolon, 4 oboli. Treffis, 3 asses. Tricessis, 30 asses. Tridrachmon, 3 drachmae. Triens c, $\frac{1}{3}$ as. Triobolon, 3 oboli. Vigessis, 20 asses. Uncia c, $\frac{1}{2}$ as.

Arithmet.] + and : — less : X multiplied-into : ÷ divided-by : = is, gives [Characters.

1 NB. The several coins, measures, and weights, being reduc'd to the lowest denominations ; the memorial verses answer all the purposes of the largest tables: (1) The difference of any two terms being known

by subtraction a : and (2) How many of any make one of another, by division b. — e. g. (a) What is the difference between a Shilling and a Shekel ? Answ. (Sh-abz) 110 — (Sh-ōk) 48 = 62 q. A i. c.

2 Measures

Arithmetic

M N E M-

i. e. $S_2 : 3 : 2 = S_1 = S_1 : 3 : 2$, the Shekel more than the Shilling.
(b) How many *Spas* make a *Fathom*?
Anfw. (Fath-oid) $72 \div (\text{Spa-n}) 9 = 8$.
Accordingly, if it be asked *What is a fathom* (and so of any other) The answer may be made, the same way, in any of the prior denominations: e. g. 24 palms, or 6 foot, or 4 cubits, or 2 yards, or $1 \frac{1}{2}$ pace, &c.

2 Any whole was call'd AS; and 1 twelfth of it UNCIA [whence our terms of ounces, for weight; and inches, for length] The several numbers of those unciae (between 1 and 12) — were denominated, in order, as follows in text: viz. Sextans (i. e. $\frac{1}{6}$) 2, Quadrans ($\frac{1}{4}$) 3, &c. — and express their manner of reckoning *Interest of money*: Thus *usurae asses* [centesimae] was 1 per Month [12 per Year] per Cent. (suppose aurei, or pounds): *denunces*, 11 twelfths per month; and so on to *unciariae*, 1 twelfth per month [1 per year] e. g. 20 d. per month, 20 s. per year.

3 Of the three apartments, distin-

guish'd by brackets, in the 1st are Brasses or Copper-; 2d, Silver-; 3d, Gold-coins.
— NB. (1) Sh-ok (as appears by the Abbreviatures explain'd underneath, and by the Key above) signifies *Shilling* 48: i. e. a shilling is 48 farthings. and so of the rest. (2) y (the memorial letter) may be pronounc'd *wee* or *wi*, to distinguish it from i: e. g. Cr-*es*y, as if it were Cr-*es*wi.

4 i. e. in the year (*Urbis Condita*) from the building of the city of Rome, 190, — e, *four*: i. e. U. C. 490, when the Punic war had exhausted the treasury, it weigh'd but 2. and so of the rest.

5 i. e. the Ægean *mina* was (ubf) 5166 q: (g) 100 of which made the Ægean *talent*. and so of the rest.

6 NB. In this list — Those in *Italic* are moneys of account: the rest, coins. — The *Figures and Marks* refer to the corresponding memorial verses.

(c) NB. There are also COIN'd Half-guineas, Half-crowns, Three-pences, Two-pences, Half-pennies; and such as are distinguish'd by a superior c.

MEASURES

reduc'd to)

CUBIC

(Pints

- 1 Quar-d. *Gal-k.R-afö. Bar-eld Ti- (wine) tts. H-uzf. P-aupē. B-athei. T-eshbau.
- 2 Firk-boid, āf. Kīl-ābek, bass (beer & ale) Bar-bdeik, ādus. Hög-ālad, bups.
- 3 Pe-bs. Bū-fö. Str-æk. Coom-dus (dry) Sc-ūbē. Ch-etzo. We-ithpē. Lā-lady.
- 4 { liq-) C-urei L-irö. Cāb-i. H-az (B) Seāh-dy. Bath-ŷy. Höm-auxu (-uid.
- 5 { Cab-durau. Göm-ūraz. Sc-boi (dry) Bā--lā. Le--dlaū. Hömer--lat.
- 6 { Coch-rādý. Ch-rauz. Myst,rok (B) Conch-raŷ. Oxybā-reī. Metr-eis.
- 7 { Coch-rādý. Choen-brē. Mēdim-pē (dry) Cý-Ox-Cōtý. Xest-as the Roman
- 8 { Quart-rö. Sē-a, rī. Cō-p. Ur-ek-rā (B) Quādr-up. Cūlē-baŷp. Lī. Cý-Ace.
- 9 { Lig-rok. Cy-rād. Acet-reī. Hēm (dry) in, rē. Sē-a, rī. † Mōd-as, re. [Hem.

- 10 *GALLON contains Inches (dry) doid, rō: (beer)-ekē: (wine)-esa³. [ro.
- 11 † POTTLE Quā-ts (dr-) i (liquid)-e--- † MODI Pints (liquid)-an (dry)-bau

ABBREVIATURES Explain'd: Acetabulum (lin.) 9, 8. Barrel 1. Bath 4. Bushel, 3. Butt 1. Cab, 4. Caph, 4. Cheme, 6. Chaudron, 3. Choenix, 7. Cochlearion 6. Concha, 6. Congius, 8. Coomb, 3. Culeus, 8. Cyathus, 9. Firkin 2. Gallon, 1. Gomer, 5. Hemina, 9. Hin, 4. Homer, 4, 5. Hogthead, 1, 2. Kilderkin, 2. Last, 3. Letech, 5. Ligula 9, 8. Log, 4. Medimnus, 7. Metrètes, 6. Modius, 9, 11. Mystron, 6. Oxybaphon, 7. Peck, 3. Pottle, 11. Punchion, 1. Quadrantal, 8. Quart, 1. Rundlet, 1. Seah 4, 5. Seam, 3. Sextarius 8, 9. Strike, 1. Tun, 1. Urna, 8. Wey, 3.

SYNONYMS, and EQUIVALENTS: Amphora, quadrantal. Amphoreus, metrètes. Cadus, metrètes. Carnock, coomb. Chos, congus. Coron, homer. Cotyle, hemina. Ephah, bath. Lingula, ligula. Omer, homer. Oxybaphon, acetabulum. Pipe, butt. Quarter, seam. Quartarius, $\frac{1}{4}$ sextarius. Semimodius, $\frac{1}{2}$ modius. Xestes, sextarius.

- 1 i. e. A Firkin (1) of Beer = 72 pints. | gallon contains only 268 $\frac{1}{4}$ inches.
- (2) of Ale = 64 pints. and so of the rest. | 3 By experiment, made in 1688, it was
- 2 By act of parliament, in 1697, the | found to contain only 224 inches.

reduc'd to)

LONG

(Inches

- 1 { Nail-d, ro. Pal-r. Hän-ö. Spa-n. Foot-ad. Cūbī-bei. E (rī) ēp (eng) ol.
- 2 { Y-is. Pa-ŷy. Fáth pe. Ro-bouk. Furl-- oindý. Mī--- síŷy. Le-miles 3.
- 3 H. Pal-f. Sp-ad. C ef. F-ous. Ez-böf. Ar-and. Schoen-andý. Stā-naug. M-oush.

4 G.

4 G. Dör-f. Lich-äz. Orth-ab. Sp-ad. Pygm-ak. Pÿ-dz. O-nau. St-naug. M-oiskyz
 5 R. Unc-ä, ri. Pal-f. Pe-bs. Palm dÿ, Cũ-ef. Grä-kÿ. Pafs-kÿ. Stä-bysh,
 6 $\frac{1}{2}$ Line-be, Bär-iz. DIGIT, INCH (Heb. Gk. Rom.). nad.: pũlõ.: peldu¹. [M²-eizth
 7 $\frac{1}{2}$ FOOT—Eng-ash.—Grēk-äzyp.—³ Rom (cofs) nauþ (f) ouþē (vēf) oukau. rion

ABBREVIATURES Explained: Arabian pole, 3. Barly-corn, 6. Cubit=pygme, pygon, pechus 1, 3, 5. Digit, 6. Doron=palm, 4. Ell (stemish, english) 1. Ezekiel's reed, 3. Fathom 2, 3. Foot=pous=pes 1, 5, 7. Furlong=stadium 2, 3, 4, 5. Gräduß, 5. Hand, 1. League, 2. Lichas, 4. Line, 6. Mile=milion=miliäre 2, &c. Nail, 1. Orguia, 4. Orthodoron, 4. Pace=passus 2, 5. Palm=doron 1, 3, 5. Palmipes, 5. Passus=pace, 5. Pes=foot, 5. Pygme, 4. Pygon, 4. Rod, 2. Schoenus, 3. Span=spithame 1, 3, 4. Spithame=span, 4. Stadium=furlong 4, 5. Uncia, 5. Yard, 2.

SYNONYMS, and EQUIVALENTS: Ammah, cubit. Aulos, furlong. Chebal, schoenus. Cubit (lesser) pygme (greater) pechys. Daçtylodochme, doron. Diaulos, 2 stadia. Dochme, doron. Gomed, span. Kaneh, ezeziel's reed. Measuring-rod, schoenus. Mili-are, on: mile. Palaeße, doron. Pathil, schoenus. Pechys, cubit. Perch, rod. Pole, rod. Pollex, uncia. Pous, pes. Tophach, palm. Ulna, cubitus. Zereth, span.

1 NB. The Digit is sometimes divided into 4 grains; the Line into 6 points.

1 NB. A Sabbath day's journey is reckoned to be 730 paces: 6 of which made the Parafang, 48 a Days journey.

3 i. e. The proportion of the Roman foot to the English (divided into 1000 parts) is here exprest, as found—on the monument of *Coffutius*—on that of *Statilius*—on a congius of *Vespasian*.

reduc'd to)

SQUARE

(Square Feet

1 E. Yar---n. Pace---du. Põle---ēpe, rō. Rcōj---azhouz. Acie---ōisufy.
 2 G. Plethron---azaff. Aroura, the half: but Egyptian---itdawn.
 3 R. Juger-efourÿ. Cli---tisau. Vē---nilÿ. (m̄in) A---fōkei (qu) atfauz.

ABBREVIATURES Explained: Actus minimus, quadratus, 3. Clima, 3. Jugerum, 3. Versus, 3. Yard, 1.

MULTIPLICATION-TABLE.

from 7] P-oi, on. P-ei, us. P-ou, si. K-ei, so. K-ou, tē. N-ōu, eia [7 × 7
 by 12] F-ad, fei. L-ad, fÿ. S-ād, oid. P-ad, ko. K-ad, ouāu, N-ad, azei [= 49

NUMERAL LETTERS

1 R { In Numerals] A less number, afore, Abates¹; after, Encreases².
 2 { I-b. V-u. X-az. L-uz. C-azÿ. D-ūyz. M (CIC³) ath: hence (CCIC³) bysh,
 3 H { N-b. 'az. p-ag⁴—10-bu⁵—from-ug by פקדן to ouzy⁶ [CCCC³
 4 { -ath by the Units⁷: but oftner by פקדן prefixing the numbers⁸ [azyth.
 5 G. { a-b. i-az. p-ag⁴. s-au. (u) koppā nÿ (J) sanpi-ouÿz⁹. d (α α. α.) azyz
 6 G. { I-b. Π. ū. Δ. äz. H-ag. X-ath. Maxth. TI multiplies others inscrib'd in¹⁰.

1 e. g. IV 4, IX 9, XL 40, XC 90.

2 e. g. VI 6, XIV 14, XIX 19, XXIX 29—N 11, י 12: NQ 101, כק 102—ia 11, pa 101. &c.

3 formd, in current writing, from M: part whereof, united (viz. 10) became D 500. hence 100 5000, 1000 50000.

4 i. e. Units, tens, hundreds, begin from the Letters here specified; and are to be reckond-on, in order, from them. e. g. α 1, β 2, γ 3, &c. ι 10, κ 20, λ 30, &c. ρ 100, σ 200, &c.

5 instead of י, being the ineffable

name of Jehovah.

6 e. g. 7 500, 600, 700, &c.

7 before the letters expressive of hundreds; as 700 1534: very seldom otherwise; אע 1070.

8 e. g. אלפיו 2000, אלפיו 3000, אלפיו 30000, &c.

9 The various figures and names of these numeral characters, see in my Table of Greek characters.

10 e. g. Δ (10) inscribed in Π (5) is |Δ| (50).

PRACTICE

1. If one¹ the sought into Price², or its factors³; or by Aliquot parts⁴; and, by the Aliquots of Fractions of Sought (if any) divide Price⁵.
 2. What'll One⁶ the Price by Commodity⁷; but, if too large, by its factors⁸.

4 Rule of 3

Arithmetic

MNEMO

1 i.e. in questions, wherein the Conditional term is 1: as, when we say "If one cost so much, what will so much cost?"

2 i.e. Multiply the question-term, or thing sought, into the price, &c. — e.g. If one cost 10 s. what will 20 cost, &c? Answ. 20 (the thing sought) x 10 (the price) = 200 s. i.e. 10 l.

3 viz. when more commodious. — e.g. If one cost 12 | 6; what will 14? Answ. The factors of 14 being 2 x 7; say 2 x 12 | 6 = 25 s; then, 7 x 25 s. = 175 s. i.e. 8 l. 15 s. — NB. If the multiplier be not resolvable into factors, take those that come nearest it; and add the price for the odd one, or multiply it by what the factors want of the multiplier.

4 i.e. Divide it by the Even parts of the denomination, in which you would have the answer. — e.g. If one cost 12 | 6; what will 14? Answ. 10 s. being $\frac{1}{2}$ of 1 l. and 2 | 6 (which makes up the 12 | 6) the $\frac{1}{4}$ of 10 s: say 2 in 14 = 7 l. then, 4 in 7 (the quotient of 14 by 2) = 1; and there remains 3 l. which, in the next inferior denomination (viz. Shillings) is 60. then 4 in 60 = 15 s.

Thus . . . 14 . . . 14 pds. pks, &c.
divided by { s 10 $\frac{1}{2}$ gives 7 - 10 2 gives 7 -
 { d 2 $\frac{1}{4}$ gives 15 2 5 gives 1 8
 { d 6 $\frac{1}{4}$ gives 15 6 4 gives 7 -
S 12: 6 L 8 15 S 12: 6 L 8: 15
5 as in the following Example:

C	qr	lb	l	s	d
84	3	11	at	1	1 10
11. s. 1. = 21 s	qr 2 $\frac{1}{2}$			-	10 11
Aliq. parts of 12: 84	1 $\frac{1}{2}$			-	5 5 2
168	lb 7 $\frac{1}{4}$			-	1 4 1
d 6 $\frac{1}{2}$	4 $\frac{1}{7}$			-	9 1
4 $\frac{1}{3}$	28				
		39. 11 lb.			18 6 -
q3. lb 11. s 18: 6					
		aliq. of fract.			pr. of fract.

In all . . . 18: 24: 6 The answer: which, being halvd, 9: 12: 6; the price of C 84: gives - 2 q3: lb 11.

6 i.e. in fums, wherein the Question-term is 1: as when we say, "If so much cost so much, What'll one cost?"

7 e.g. If 12 cost 10 | 5, what will 1? Answer, 12 in 10 | 5 I cannot have: but 12 in 10 x 12 (to reduce it to pence) = 120 + 6 = 126: then 12 in 126 = 10 d; and 6 remains: which multiplied into 4 (to reduce it to farthings) is 24: then 12 in 24 = 2 q.

Thus { in s 10: 6: - | or, by the factors 12 - 10 2 | of 12, viz.
2 x 6, or 3 x 4; as in the following:

8 The foregoing example will stand
Thus { in s 10: 6: - | in s 10: 6: -
 2 5 3 - | 3 3 6 -
 6 10 2 4 4 10 2

So the answer is found more easily, than by dividing by 12: much more so will it be, when the number is higher.

RULE OF THREE

all questions in it answerd (1) by one stating (2) the same way.

(1) **CONDITIONAL** in one line: and, opposite, the terms **CORRESPONDING**.

(2) **-DEND** is the **-Ducing** of one into **-Duc'd** of the other: the **Rest-Sor**.

NB. No **-Duc'd**: the facit of one line divide by that of the other. 2.

1 i.e. The producing 2 terms of one line multiplied into the produc'd b of the other, give the **diviDEND**; and the rest of the terms multiplied together, give the **diviSOR**: the Quotient falls to the blank c.

— (a) Producing terms are such as jointly produce any effect. e.g. whatever is considered as a cause, with the adjuncts of time, distance, measure, &c. — (b) Produced terms are such as are connected with the others under the character of price, purchase, produce, gain, loss, interest, advantage, value or quantity of work, &c. —

(c) e.g. At the rate of 6 per cent. per ann. what is the interest of 200 l. for 18 months? Answ. The terms being stated, as they offer (without any other regard than Which are conditional, and Which imply the question) Thus:

interest principal time or in any other
6 l. 100 l. 12 m. order agreeable
200 18 to the directions
in the rule, say "6 (the produced term of one line) x 18 x 200 (the producing terms of the other) = 21600 (for the dividend): And (the rest) 100 x 12 = 1200 (for the divisor). Then 21600 ÷ 1200 = 18, the answer; viz. 18 l.
2, i.e. If there be no produc'd term (as generally happens in the single rule of three inverse) divide the facit &c. — e.g. How much stuff, yard-broad, will line 10 yards of cloth, yard-and-quarter broad? The terms being stated thus:
broad long say 5 x 10 = 50.
4 qrs and 50 ÷ 4 = 12 $\frac{3}{4}$.
5 10 yard. i.e. 12 yards and $\frac{3}{4}$ or $\frac{1}{2}$.

SUBTRACTION

may more commodiously be performed by Addition; as in the next article

TABULATING

To Multiply and Divide by Addition only

1. Twice-double-Multiplicand facits † every multiplicator. † gives the f. of

2. Tabulate Divisor: Quote next Digit-under: Subtract by Addition.

1. In the MULTIPLICATION-sum (I) the facits of the multiplicand twice doubled, are, as they stand against the digits 2 and 4. Then, To multiply the multiplicand — into 8 (the last figure of the multiplicator) double the facit of the digit 4 — into 6 (the 2d figure &c.) add the facit of 4 to that of 2 (=6) — into 7 (the next figure &c.) add together the facits of 1, 2, 4 (=7) placing each of them, as in the common method of multiplication.

2. In the DIVISION-sum (II) (1) Tabulate the divisor, as in the example, viz. against the digit 2, by adding the divisor to it self; against 3, by adding together the totals of 2 and 1; against 4, by adding the total of 2 to itself, or that of 3 to that of 1; and, in like manner, in the rest, by adding together the totals of any two or more digits, equal to the digit whose total is sought. Then, (2) Quote (or, for the quotient, take) the digit against the total next less, or under the first corresponding figures of the dividend, viz. 7585. Then, instead of subtracting, according to the common method, the facit of the divisor

by 9 (viz. 6912) from (7585) the corresponding figures of the dividend (3) Subtract by addition, and say [not, 2 from 5, and there remains 3; but] 2, and (so much as will make 5, viz.) 3 is 5: then 1, and (as much as will make 8, viz.) 7 is 8: then 9, and [what will make 15 (since 9 cannot be taken from 5) viz.] 6 is 15: then 1, that I borrow, and 6 is 7: and so on. — In the DIVISION-sum (III) it appears that — All the tabulating necessary to find the quotient, is only to double the divisor: for, the total next less than (the 1st dividend) 987, is 968; therefore quote 1: then (the 2d dividend) 196 has no total less; therefore quote 0: then, the next total less than (the 3d dividend) 1965, is (the 2d total, viz.) 1936; therefore quote 2. — And, in like manner, may be tabulated any sum, by steps, as there shall be occasion.

(a) N.B. 15, being the last found in the mouth of the operator, does more readily and certainly remind him of what he borrowd, than in the common way of subtraction: which is no small advantage to this method.

Multipl. and cator.	
D. 1	987654768
2	197539 (I)
4	395060
by	
Facit.	7901208
	592590
	691355
(II)	
Dividend	75851520 ÷ 768
	673794 1536
	5898 2304
	43 3072
Quotient (III)	3840
	98765 ÷ 968 4608
	1929 1936 5376
Quotient	102 6144
	6912

WEIGHTS

for Gold, Silver, Jewels]

reduc'd to)

TROY

Moners

[Grains and Liquors

(Blanks

1 MON. Pērit-ef. Droit-oký. Mite-abth ūdý. Grain-dizozý.

reduc'd to)

Goldsmiths and Apothecaries

(Grains

2 (GOLD) Cār-ō¹. Pen-dō (Pō.) Scrup-dý. Drām-anz. Ounce-oký. Pō loify

for Baser-metals, Bread]

AVERDUPOIS

[Mercery, Grocery, &c.

reduc'd to)

Wool

(Pounds

3 Clove-oi. Stone-bō. Tōd-ek. Weigh-beid. Sack-tauf. Last-fisei.

Other Things

4 Pound-ounce-as. Hun-pounds-abe. hūn-Fother-án, are: Tun-ez.

reduc'd to)

Hebeto

(Grains

5 Zuza-lf. Bek-azei. Shēk-ēbei². Mān-ēbeizý. Tal-am nyth.

Greek and Roman

6 Lens, kūrābe. Lept, aurek. Chalch-ā, rē. Sil-t, rēk. Ob, ou-trek. 6

7 Script-ak, traf. Dra-lf, ouraf. — Sext-oid, aurp. Sicil-azn, erp. 7

8 Duell-bol, wroi. — Unc-fp, roi. — Libra-lefu, troi. 8

Pro-

Proportions

- 9 GRAINS English-bif, re make French-alei, Dutch-apon.
 10 OUNCE has grains Avē-efei, Troy-fouz³: as eiy to oii⁴.
 11 POUND Aver-heavier than Troy by 2 ounce.4 drams, and 2 scruples.

ABBREVIATURES Explained: Bekah, 5. Carat, 2. Chalchos, 6. Drachma, 7. Duella, 8. Hundred-weight, 4. Lepton, 6. Maneh, 5. Obolus, 6. Penny-weight, 2. Pound 2. Scriptulum, 7. Scruple, 2. Sextula, 7. Shekel, 5. Sicilicus, 7. Siliqua, 6. Talent, 5. Uncia, 8. Zuzah, 5.

SYNONYMS: Gramma, scruple. Keration, filiqua. Lens, grain. Litra, libra. Quintal, hundred-weight. Sitarion, grain.

1 N.B. The Grains, us'd in weighing Diamonds, are somewhat lighter than those us'd in gold &c.

2 i.e. 218, according to Bp. Cumberland: 268, according to father Merfenne.

3 So that the averdupois-ounce is less by 42 grains than the troy-ounce; which amounts to near a 12th part of the whole.

4 i.e. 73 ounces-troy make 80 ounces-averdupois.

Astronomy
MARCH

the 1st day, to find on what day of the week it happens.

- 1 The year, more 2 and even-4th, divide by 7: [given
 2 By what remains (fōr o fat. 1 fund. and-so-on) it is

E. G. Ann. Dom. $26 + 2 + 6$ (its even-4th) = $34 \div 7$, remains 6: i.e. Friday; accounting Saturday 0, Sunday 1, Monday 2, &c.—Before Christ, reckon Backward; viz. Sunday 1, Saturday 2, and

so on to Monday 0. e.g. Bef. Chr. $7 + 2 + 1$ (its even-4th) = $10 \div 7$, remains 3; i.e. Friday.—Of the other months to find the 1st day, and consequently what day of the week any day is; V. Signs.

MONTHS

the number of days in each, with the days of the nones and ides.

Ap Sē Nō June-iz¹: Mar Mā Jūl Oc, no p, id-al²; in the Rest, l...at³.

1 February, it is well known, has 28 (in the leap-years 29) the Rest 31.

2 i.e. the Nones are on the 7th day, the

Ides on the 15; in these 4 months.

3 i.e. the Nones are on the 5th, the Ides on the 13th; in the rest.

MOON

CYCLE and EPOCH

Golden's remainder of year more-1, divided by 19¹.

Epoch's the cycle into ab: above iz, by iz, the remainder².

CHANGE and AGE

New's the remainder of month-from-march and epoch, less iz, aux³;

Ap. Se. No. Jun. less en—For Jan. Mar. 0, Feb. Apri. 1 add.

Full's 15 days from the change—Waining, east; Growing, west is en-

RISE and SETTING [lighten'd⁴.

At Sun-set, sets New, rises Full; and, each day, minutes ub more.

Shining (in Waining) Substract (in Encreasing) Add to Sun-rise, set.

SOUTHING and TIDES

Southing's the age into ok, by 60: from al, the excess take⁵.

High-water at London-bridge: Two hours and a half after Southing⁶.

1 e.g. $1737 + 1 = 1738 \div 19 = 91$ remainder 9, for the cycle, or Golden-number.

2 e.g. 9 (the cycle) $\times 11 = 99 \div 30$ (as being above 30) = 9: remainder 9, for the epoch.

3 e.g. May 20 (1737) What is the moon's age? Answ. 3 (the number of the month from march, inclusively) $+ 9$ (the epoch) = $12 - 30 = 18$: the day of

the new moon, when it is said to change. So, the moon, on the 20th of May, is 2 days old.

4 i.e. The Horns are turned, in Decreasing (from the Full) West-ward: in Encreasing (from the New) East-ward.

5 e.g. Apr. 15 (1737) When comes the moon to the meridian? Answ. The moon's age is 26: the excess above (al) 15, is 11. Then, $11 \times 48 = 528 \div 60 = 8$ h,

= 8 h. 48 m. for the Southing. — For the reader working, the rule may be thus exprest: "Age into 4, by 5 : into 12 the remainder gives minutes." e. g. $11 \times 4 = 44 \div 5 = 8 \text{ h. remainder } 4 \times 12 =$

48.

6 e. g. Apr. 15 (1737) the moon Southed at 8 h. 48'. Then 8 h. 48' + 2 h. 30' = 11 h. 18'. (NB) If the total amounts to more than 12 ; the excess shows the hour.

the 12

SIGNS

portions of the Zodiac, nam'd from Constellations once in them :
their Names, Characters, and Corresponding Months ;
with a key to find the Sun's place on any day ¹ ;
and on what day of the week the 1st day of any month happens ².

1	Ar	ma	n ¹	ā ²	♈	Aries
2	Taur	apr	ou	f	♉	Taurus
3	Gēmi	may	k	s	♊	Gemini
4	Cance	jūn	p	e	♋	Cancer
5	Lē	jūl	p	f	♌	Leo
6	V	au	p	p]	♍	Virgo
7	Līb	se	p	i	♎	Libra
8	Sc	oc	s	ū	♏	Scorpio
9	Sā	no	p	ā	♐	Sagittarius
10	Cā	de	k	t	♑	Capricornus
11	Aquā	ja	n	s	♒	Aquarius
12	Pīscē	feb	ba	d	♓	Pisces

¹ The method is this: To the day of the month (+ 11 for the old style) add the number signified by the numerals *n, ou, &c.* the Sun (— 30, if above 30) is in the degree of the sign corresponding to the day of the month. E. G. Feb. 10 + 11 (for the old style) + 11 (for the numeral *ba*) = 32 — 30 = 2° of ♈.

² Thus : From the day, on which March 1st happens (V. March) for any other month, count forward so many days as are signified by the numerals *a, f, &c.* E. G. Mar. 1st, 1737, was tuesday : there-

fore Apr. 1st [counting (f) 4 onwards, tuesday being one] is friday : and, consequently, the 8th, 15th, 22d, 29th, are fridays ; whence may be known the Rest. [N. B.] Jan. and Feb. are reckond from Mar. of the preceding year.

SUN

the time of its RISING, each month

8 Jān-o¹ 7 Febr-ei. 6 Mar-bŷ. 5 Apr-ou. 4 M-as†
4 Jūl-p. 5 Aug-at. 6 Sept-ad. 7 O...be. 8 N-al.†
† JūN-ba, the Longest, i f² — the Shortest, ei boi, DEC-EM-ba †
for the intermediate days

Sought, into 60, by All, gives Min. fewer 1st line, more 2d ³.

the time of its SETTING, each month, &c.
Setting's the complement of rising to 12 ; and, doubled, the day gives ⁴.

CYCLE and DOMINICAL LETTER.

Cycle's the remainder of year-more-9 by *ek* ⁵ : if 0, *ek* ⁶.

ek cycle's A ; *ep*, B ; and so on ⁷ : e'ery 4th has 2 ⁸ (next

after these 3ds : *d E, au G, a-y B, bo D, aei F, de A, dau C*) and

FORMER is us'd till Feb-do, in Leap-years ; and, after, the LATTER.

To find the Sun's

PLACE

in the Zodiac, V. Signs.

¹ i. e. On Jan. 4, the Sun rises at 8.

² i. e. On Jun. 11 (which is the Longest day) the Sun rises at 3 h. 43'.

³ i. e. The day sought (reckond from the day of the Sun's rising) multiplied into 60, and divided by the number of All the days between the day of the Sun's rising (specified) in any month, and the day of its rising in the next ; gives the Minutes fewer (or, to be subtracted from the hour specified) in the 1st line ; more (or, to be added) in the 2d line. — e. g. Apr. 13, I would know when the Sun rises. By 5

Apr-ou I find that the day sought (reckond from the day of the Sun's rising, viz. the 9th) is 4 [for 9 + 4 = 13]. Then, 4 × 60 = 240 : and 240 ÷ 36 (the number of All the days from 5 Apr-ou to 4 M-as : i. e. from 9, the day the Sun rises at 5 in April ; to 16, the day the Sun rises at 4 in May) = 6' [and $\frac{2}{3}$ i. e. by reduction] 40". — 5 h (the day it rises on the 9th of April) = 4 h. 53', 20". Then therefore the Sun rises on that day, viz. Apr. 13.

⁴ Thus, dec. 11, the sun rises at 8 h. 17' : the complement of its rising to 12 is 3 h. 43' [for

Epochas

Chronology

MINUT

[for 8h. 17'—12 h.=3 h. 43'] The sun, therefore, sets at 3 h. 43': and this, doubled, gives the length of the Day, viz. 7 h. 26': shorter by 9 h. 8' than the longest; which (by the same calculation) will be found to be 16 h. 34'.

5 e.g. $1737 + 9 = 1746 \div 28 = 62$ (the number of revolutions since Christ) remainder 10, for the number of the cycle.

6 i.e. If there be no remainder, it will be (et) the 28th, or last year of the cycle.

7 i.e. The dominical letter answering to the year of the cycle 28 is A; to 27, B; and so on (backwards) to G, the 7th and last: after which returns A, B, &c.

8 e.g. Every 4th (or Leap-year) has

12 dominical letters: the latter of which is us'd after Feb. 24, the intercalary day; which is therefore denoted by the same letter as the 12th. —NB. For the reader finding the dominical letter answering to any number of the cycle; I have given (in parenthesis) those of every third: thus (aet F) F answering to 18 (one of the 3ds there specified) 17 (the next 4th, reckoning backwards) will be G A; 16, B; 15 C; &c.

(a) For the reader finding Leap-year, the Rule is this: "Year-sought divide by 4; what's left will be, for leap-year, 0; for past, 1, 2, or 3." e.g. $1737 \div 4 = 434$: remainder 1, for 1st after leap-year.

Chronology

DATING

Roman

(1) Kal. Non. Id. (2) Pridie (3) Tert. quart. (nb) The day sought subtract from One more than Ide-None-days; Two more than the month's, for the Kalends.

I. i.e. (1) For the days, on which the Kalends, Nones, Ides of any month happen (V. Months) write (e.g.) Kal. Dec. on the kalends of december, viz. the 1st day of December. (2) On the day preceding each of them, write (e.g.) Pridie Kal. Dec. i.e. pridie kalendas decembres, on the day before the kalends of december, viz. the 30th of november. (3) For the days backward, write Tertio, Quarto, &c. i.e. on the 3d, 4th, &c.

II. To find any of the days, e.g.—(1) 10th of december, What, in the Roman style? Answ. 10—14 (One more than the days the ides happen-on) = 4. i.e. 4to id. dec. Again (2) 4to id. dec. What, in the English style? Answ. 4—14=10. i.e. the 10th of december. —(1) 20th of november: Say 20—32 (Two more than the number of the days in the month) = 12. i.e. 12mo kal. dec. (2) 12mo kal. dec. say 12—32=20.

EPOCHAS

their Commencement in the Julian period

WORLD	pauf	764	of the World	from the creation (A.M. or O.C.)
CHRIST *	opaf	4714	of Christ	birth of Jesus Christ (A.D.)
Aet	oski	4683	Aetian	defeat of Antony at Actium.
Agon. capit.	opnou	4799	Capitoline	institution of the Capit. games.
Bab	doke	2482	Babylonian	beginning of the Assy. monar.
Cyr	obki	4183	of Cyrus	end of the captivity under Cyr.
Del	efan	2419	Deluge	Noah's universal Deluge.
Dioclesi	onnoi	4997	Dioclesian	persecution under Dioclesian.
Exod	idap	3217	Exodus	Going of the Isr. out of Egypt.
Heg	util	5335	Hegira	Flight of Mahomet to Mecca.
Indict	uzel	5025	Indictions	institution of the Indictions.
Juli	ospa	4671	of Julius	reformat. of the calend. und. J.
Nabon	inaup	3967	of Nabonassar	reign of Nab. king of Babylon.
Olympic	inik	3938	Olympic	institution of the Olym. games.
Philip	otni	4393	Philippic	succession of Ph. to Alex. the G.
Rom	insa	3971	Rome built	building of the city R. (U.C.)
Sel	ofyt	4403	Contracts	reign of Seleucus k. of Syria, &c.
Spanish	ospau	4676	Spanish	defeat of the Spa. by Calvinus.
Troy	tute	3532	Troy taken	taking of the city of Troy.
Yezdegir	utof	5344	Yezdegirdic	death of Yezdeg. king of Persia.

* CHRIST born A.M. fyzo. Jew-tpaud. Greek, ecc-lanf: civil-ulzon.

To Find

1. The year of the Julian period corresponding to any year in any *Æra*.
2. Any year of any *Æra* by the corresponding year of the Julian period.

1) JUL— for *After* add Comm-less-1 — for *Afore* take from Comm.
 2) ÆR— *After*, Comm-less-1 take from Corr— but *Afore*, Corr. from Comm.

1. What year of the JULIAN Period is the year 1737 (1) before Christ? (2) after Christ? — Answ. (1) 1737 (before Christ)—4714 (the year of the commencement of the christian æra in the Julian period)=2977. (2) 1737 (after Christ) + 4713 (the commencement-less-1)=6450, the year of the Julian period.

2. What year of the CHRISTIAN Æra is the year of the Julian period (1) 2977? (2) 6450 — Answ. (1) 2977 (the year of the Julian period corresponding to the year of the æra sought)—4714 (the commencement of the christian æra)=1737. (2) 6450 (the corresponding year)—4713 (the commencement-less-1)=1737.

* For the number of years from the Creation to the Birth of Christ

— The Christian vulgar æra commences in the year of the world 4004, jan. 1. [according to Helvicus, Isaacson, &c. 3948] — The Jews place the creation of the world, Later by 242 years, viz. in 3762, oct. 7. — The Greek historians, on the authority of the septuagint, Sooner by about 1490, or 1500 years, viz. the ecclesiastical, in 5494; the civil, in 5509.

Holy-days)

FESTIVALS

(Feasts, &c.

IMMOVABLE

[Transf-au, s.

Christ] Nát-de, du¹. Circ-ja, b. Epiph-ja, s. Lámm-au, b. HoRóod-se, bo.
 Mary] Ann-mär, el. Púr-feb, e. Nat-se, k. Vís-jul, e. Cónc-de, k. Ás-au, al

SAINTS

All-növ, ä. And-nov, iz. Bap-jun, ef. Bárnaby-jun, ab.
 Barth-aug, ef. George-apr, et. James-jul, du. Innöcënt-dec, dei.
 John-dec, doi. Luke-o, ak. Mark-ápri, du. Márti-novemb, ab.
 Mátt-se, da. Paul-jan, du. Pet-jun, dou. Phil Jaco-may, a.
 Sim Jud-o, ek. Ste-de, dau. Tho-dec, da. Valéntine-feb, af. [a: seid.

Royal Family.

CÓR-o, ba. PRÓCLA-jun, ab. BORN, Kíng-o, ty: seít. Queen-mar,
 Wáles-ja, ty: pyp. -cess-n, ak. Ann O'r-o, de: pyn. Ame-ma, iz: pab.
 Car-ma, iz: pat. Will-apr, al: peb. Már-fe, de: pét. Loui-de, p: pef.

TERMS

Terms hold weeks al: dáy's Hilar-eb. East-ép. Trin-dy. Mich-tau.
 HIL from ján-di to feb-be — MICH from óc-do to nov-ek.
 EAST, wéd-e áfter, begins: ends, áfter ascénsion, mond-a.
 TRIN, fríday áfter, begins; and ends 3d wéden'sday after.
 Vac. holds weeks toi: dáy's Hilar-oit. East-ap. Tr-abs. Mich-us.

Quar.] Ládý-mar, el. Midsum-jun, ef. Mich-sép, dou. Chri-dec, el. [at.
 Provi.] Fire-sép, e. Poud-no, l. Márt-ja, ty. Réstor-may, dou. Revo-feb,

1 Before Easter]

MOVABLE

[After Easter 2.

1 Sept-ft² Sex-us. Shrovc-on. Qua-se. Lent-os. Pál-p. Maund-i. Good Fri-d
 EASTER's the first Sunday after first Full-moon after March-da.

2 Low-oi². Róga-tu. Asc-in. Whit-on. Trin-lau. Ad-cta.
 EMBER-dáys We Fri Sát, after Quá Whit HoRóod Luci-dec, at.

Easter-Table³.

Paschal-full-moons for the Golden-numbers, with the Hebdomadal letters.

1 A l d	5 M ed d.	9 A oi f.	13 M eo f.	17 A n a
2 M el g	6 A by b	10 M eoi b	14 A be d	18 M-eou d
3 A bi e	7 M iz e	11 A bu g	15 A a g	19 A-bot b.
4 A' e a	8 A-bei c			

Use] Súm from Hebdóm to Domín (of the year sought) ádd to the Month's day 4. [of Tab.

SYNONYMS, &c. Ash-wedensday, 1st day of lent. Candlemas, purification of the virgin M. Crucifixion, good-friday. Holy-thursday, maunday. Holy-week, last of lent. John the baptist, midsummer. Parasceue, good-friday. Passion-week, last of lent.

Pentecost, whitson-tide, whitfontide. Professioning-day, ascension-day. Quinquagesima, shrove-sunday. Shor-(Shur-)thursday, maunday-thursday. Twelfth-day, epiphany.

1 i. e. The nativity of Christ is on dec. 25. and so of the rest.

2 i. e. —Septuagesima-sunday is (st) 63 days before Easter [70 before the octave of easter] —Low-sunday is (oi) 7 days after Easter : and so of the rest.

3 The Easter-table consists of 5 verses, each ending at a period-mark; and may be read thus : " One-ald, two-melg, three-äbi e, four A ä ä, five-medd. " &c. —Its Use is to find Easter-sunday for

ever. V. n. 4.

4 e. g. A. D. 1737, the golden-number is 9, the dominical letter B. then, against 9 (in the table) the hebdomadal letter is F. from thence to the dominical B are (g a b) 3 : which added to apr. 7 (the day of the month, in the table) gives apr. 10, for easter-sunday. —So A. D. 1736, golden-number 8, 1st dominical-letter C : then from C (in the table) to C (dominic.) 7 + apr. 18 = apr. 25.

Geography

In the following verses (which contain as much, I think, as is necessary to charge the memory with by way of foundation) I have given the most general divisions of the several parts of the terraqueous globe; beginning, in each, with the most northerly parts; and, in descending southwards, proceed (to the right) from west to east:

Continents, Isles, Peninsulas] LAND [Isthmus, Capes, Mountains
Europe, Africa] CONTINENTS [Asia, America
 AF (8) Bar (fêz mor a tûn tripo bárc) Bi (dar) Egÿ (alex cair)
 Zaár (zue) Ne (tomb) Nubi (dunc) Gui (ma quá be lo c áng) Ethi (mon caf
 AM (15) Green Dén Wa La : Cán (acad eng jerf pén mary virg car)
 Gran (fê) Flór (loui mate) Mex (guád me ta jú chi guat hon ver)
 Firm (pa ca már venez ánd gra po guí cari) Pér (quí pa lím carc)
 Am : Brásí (sál seba vin) Chil (já) Para (guáy ruco plát) Mag.
 AS (5) Tár (ä sí za tu) Türk (mi nat árm fy di ár) Pe (der ílp
 Ind (mög ág beng : víf go bi mál : pe to sí co) Chi (pêk nank). [gomb.
 EUK (18) Nor-berg. Swede-stock [Scot-éd'n Ire-dúblin. E-london]. [pár
 Dén-cóp : Hol-amst. Fland-brúss. Ge-viën. Po-cra. Rúss-mosc : France-
 Switz-basil. Húng-buda. Port-lib. Spáin-mad. Itál-ro. Tu-constant.

AFRICA. Barbary comprehends the kingdoms of Fez, Morocco, Algiers, Tunis, Tripoli, Barca. *Bildulgerid* : Darha. *Egypt* : (ch. cit.) Alexandria, Cairo. *Za-ara* : (ch. prov.) Zuenziga. *Negroland* : Tombut. *Nubia* : Duncala. *Guinea* : Malaguetta, Quaqua, Benin, Loango, Congo, Angóla. *Ethiopia* : Monóemugi, Monómotapa, Cafres.

AMERICA. Greenland, new-Denmark, new-Wales, Labrador, Canada : (ch. prov.) Acadia, new-England, new-Jersey, Pennsylvania, Maryland, Virginia, Carolina. *Granada* : St. Fé. *Florida* : (ch. towns) fort-Louis, St. Matthew. *Mexico* : (ch. prov.) Guadalaíara, Mechoachan. *Tabasco*, *Jucatan*, *Chiapa*, *Guatimála*, *Honduras*, *Verragua*. *terra-Firma* : *Panama*, *Carthagéna*, *St. Martha*, *Venezúla*, *Andalusia*, *Granada*, *Popaya*, *Guíana*, *Caribána*. *Peru* : *Quito*, *Pacamóres*, *Lima*, *Carcas*. *land of the Amazons*. *Brasil* : (ch. cit.) *St. Salvadore*, *St. Sebastian*, *St. Vincent*.

so that children, with a few hints and occasional helps, may be able to find them, by themselves; and thereby fix them better in their memories: after which they will easily get the verses by heart; and be well prepared to consult the gazetteer, or go through any system, with pleasure, to good advantage.

Chili : St. Jago. *Paraguay* : (ch. prov.) *Guayra*, *Tucuman*, *rio de la Plata*. *terra Magellanica*.
ASIA. *Tartary* : (ch. prov.) *Astracan*, *Siberia*, *Zagathay*, *Turkestan*. *Turkey* : *Mingrelia*, *Natolia*, *Armenia*, *Syria*, *Diarbeck*, *Arabia*. *Persia* : (ch. cit.) *Derbent*, *Ispahan*, *Gombroon*. *India* : (ch. prov.) empire of the great *Mogul* (*Agra*, *Bengale*) *Visapour*, *Golconda*, *Bisnagar*, *Malabar* : *Pegu*, *Tonquin*, *Siam*, *Cochinchin*, *China* : (ch. cit.) *Pekin*, *Nanquin*.

EUROPE. *Norway*, (ch. cit.) *Bergen*. *Sweden*, *Stockholm*. *Scotland*, *Edinburgh*. *Ireland*, *Dublin*. *England*, *London*. *Denmark*, *Copenhagen*. *Holland*, *Amsterdam*. *Flanders*, *Brussels*. *Germany*, *Vienna*. *Poland*, *Cracow*. *Russia*, *Moscow*. *France*, *Paris*. *Switzerland*, *Basil*. *Hungary*, *Buda*. *Portugal*, *Lisbon*. *Spain*, *Madrid*. *Italy*, *Rome*. *Turkey*, *Constantinople*.

CAVES, ISLANDS, PENINSULAS, MOUNTAINS [-suog.
CAVES: La Li St-*eng.* Fi Vi *Spain.* Bla Ve Good-*afri.* Com-malab. Horn
ISLES: Zē-den. Az-*ac.* Sā Sic Ca Cy-med. Ma Ca *barb.* He-gui Mad-*eth.*
 Mald Ceyl Sum Bo Su Jáv Phi Mo Ladr-*ind.* Nēwf-la. Calif-gran.
 Bér-*flo.* Ba Cú Jam Hi Ric Carib (ánt ne. mo barb)-*mex.* Fuōg-mag.
PEN: Jū-de. Mō-gre. Pre-tárt: Afri: Cāmb Malac-*ind.* Mex. Amer
MOUNT: Chēvī-*scot.* Pyr-*Spain.* Alps-*it.* Cauca-tárt. Apalach-*flor.* [south.

CAVES: Land's-end, Lizard, Start (of)
 England. Finisterra, St. Vincent, Spain.
 Blanco, Verd, Good-hope, Africa. Co-
 morin, Malabar. Horn, Fuogo.

ISLES: Zealand, (in) Denmark. Azo-
 res (against) Acadia. Sardinia, Sicily,
 Candia, Cyprus, (in the) Mediterranean.
 Madera, Canary, (against) Barbary. St.
 Helena, Guinea. Madagascar, Ethiopia.
 Maldives, Ceylon, Sumatra, Borneo, Sund,
 Java, Philippin, Molucca, Ladrōn, east-
 Indies. New-found-land, Labrador. Cali-
 fornia, Granada. Bermudas, Florida. Ba-

hama, Cuba, Jamaica, Hispaniola, porto-
 Rico: Caribbee (Antegoa, Nevis, Mont-
 ferat, Barbados) Mexico. Fuogo, terra
 Magellanica.

PENINSULAS: Juitland (in) Denmark.
 Morea, Greece. Precop, Tartary. Africa.
 Cambaya, Malacca, India. Mexico, South
 America.

MOUNTAINS: Cheviot (between) Scot-
 land and England. Pyrenees, Spain and
 France. Alps, Italy, and France and Ger-
 many. Caucasus, Tartary and Mogul.
 Apalachin, Florida and Canada.

Oceans, Seas, Gulfs]

WATER

[Straits, Lakes, Rivers

OCEANS: Hýp. Ethí. East. Atl-Wést. Paci-South-del Zur. Ice.
SEAS: Ba Whi-*fuode.* Chan-*eng.* Med-*eu, af.* Black-*eu, af.* Casp-*tartar.*
GULFS: Bō Fī-*swede.* Ven-*ital.* Red-*arab.* Perf. Bēng. Bāñ Hu-*north Am.*
STRAITS: So-bált Gi-med. Hēl-bla. Ba-réd Sun-in. Hú-bu. Da-baff. Mag.
LAKES: LadO-*swede.* Ne Lo-*scot.* Ge Lu-gér Baba-*pers.* Bo-ne. Par-*firm.*
RIV. Wō-cā. Dá-bla. Rhi-*ger.* Rh Eb Nil-*me.* T. Eu-*pers.* Ga-be. Mīl-*mex.*

OCEANS: Hyperborean (or northern)
 Ethiopian. Eastern. Atlantic or Western.
 Pacific, or South, or mar del Zur. Icy
 (south-east of terra magellanica.)

SEAS: Baltic, in; White-sea, east of
 Sweden. Channel, south-east of England.
 Mediterranean-sea, between Europe and
 Africa. Black-sea, between Europe and
 Asia. Caspian-sea in Tartary.

GULFS: of Bothnia, of Finland, in
 Sweden. of Venice, east of Italy. Red-
 sea, west of Arabia. Persian-gulf. bay
 of Bengal. Baffin's-bay, and Hudson's-
 bay in north-America.

STRAITS: Sound (of the) Baltic. Gi-
 braltar, Mediterranean. Hellespont, Black-

sea. Babelmandel, Red-sea. Sund, In-
 dian-ocean. Hudson's-straits, Button's-bay.
 Davis's-straits, Baffin's-bay. Straits of
 Magellan.

LAKES: Ladoga, in; Onega, east of
 Sweden. lough-Nefs, lough-Lomond (in)
 Scotland. lake of Geneva, of Lucern, Ger-
 many. Babacombar, Persia. Borno, Ne-
 groland. Parime, terra-Firma.

RIVERS: Wolga (falls into the) Caspian-
 sea. Danube, Black-sea. Rhine, Ger-
 man-ocean. Rhosne, Ebro, Nile, Mediter-
 ranean. Tigris, Euphrates, Persian-gulf,
 Ganges, bay of Bengal. Mississippi, bay of
 Mexico.

A More-particular Account

of the several countries of Europe may be exhibited, so as to give a precise idea of the
 situation of each subdivision, after the manner of the following specimen: in which (be-
 side what was proposd in general, not. 1.) Such as are contiguous Southward, are
 joind; as in weLa-: Such as are contiguous Westward, are hyphend; as in Che-De-
 Sc.

its forty)

ENGLAND

(counties

Nor cum-dúr: weLa-yórk: che-de-not-linc: shróp-íta-le-rut norf:
 Hér-wo-wa-nórtha Bed-hunt-cāmb-suff: mon-gl-oxfo-buck-hart-es.
 Som-wilt-bárk-middlesex: corn-dev-dors-hámp-surrey-kentSufs.

on either side)

FIRST MERIDIANS

(of Teneriffe

(East) London-as (West) Fer-d. Jag-s. Nicol-oi. Córvo-bei. Braf-bou.

ABBREV.] Ferro. St. Jago. St. Nicolas. coast of Brasil.

[IATURES

The first Meridian is plac'd, by the Dutch, in *Tenerif*; and the Gazetteer has calculated his LONGITUDES from thence. The French (by order of the King, since the year 1634) place it 2 degrees west of *Tenerif*, in the island *Ferro*: Others, variously, as in the memorial verse. In the

French maps, therefore, and those copied from them; two degrees must be allow'd, or added to the Dutch longitude, as in the Gazetteer. E. G. *Hamburgh* is there said to be long. $29^{\circ} 20'$: in the French maps, therefore, it will be found in $31^{\circ} 20'$. And, in like manner, in the rest.

History.

BIBLE

the several books of it, with the time of their writing

its 39)

OLD TESTAMENT

(books

Elīh-jōb: apty¹. Mo-pent: bog. Jōsh: boly. Sām-ju-ki: bazy.
Dāv: byly. Sōl-pro-can-ecc: ath. Mōrd-e: toz. E-z-chr: ety. Neh: eg.
Jōn: kse. Jo: eig. Am: pēp. Hōsc: oieil. Is. pāny. Nah: puk.
Mic: put. Jér: sta. Zeph: autz. Haba: syn. Ezē: ionl. Obadi-lkoī.
Dāniel: nil. Hag: lēz. Zechari: udz. Mālachi: tonot.

its 27)

NEW TESTAMENT

(books

Mātt-fa². Mar-or. Thēs-lēz. Pe-lo. Gal. Cor. Rōma-loi. Luke-sa.
Phil. Col. Ephēs. Phile. Jāme-se. Heb. Act-si. Timothy. Tīt-sū.
Tim. Peter-aup. Jude-pa. Revel-ous. John-not. — 3 doī in ian.

i. e. *Elību* is most probably supposed to be the author of the book of *Job*, about 1730 years before the birth of Christ. So, *Moses*, the author of the *pentateuch*, flourished in the year before Christ 1400. And so of the rest. — NB. *Ezra* is thought by the Jewish doctors to have writ the *chronicles* [the 36th chapter of *Genesis*,

the last of *Joshua* and *Jeremiah*; and to have revised and settled the canon of the old testament.]

2 i. e. *Matthew* writ his gospel about the year of our Lord 41. And so of the rest.

3 i. e. 27 books (from the year 41 to 97) in 36 years.

ENGLAND

its kings, since the conquest, with the commencement of their reigns

WILL Conq-fau¹, ruf-koi. HEN 1st-ag. STEPH-bil. HE 1st-buf.
RICH 1st-bein. JOHN-ann. HEN 3d-das. EDWARD 1st-dōid.
ED 2d-tyy. 3d-tyy. RI 1st-ipp. HEN 4th-tonn, 5th-fat.
6th-fed. ED 4th-faub, 5th, RI 3d-feit. HE 7th-feil, 8th-lyn.
ED 6th-lop. MARY-luz. ELS-luk. JAME 1st-fyt. CÅ 1st-sel.
CAR 2d-fon. JAME 2d-feil. WILL MA-fein. ANN-pyd. Geo-paf, pep.

i. e. *William the conqueror* began his reign (accounting the year to begin janu-

ary 1) A. D. 1066. — NB. 1000 is omitted throughout this list.

MONARCHIES

the grand, or universal ones, their rise, fall, and continuance

ASS: Nin (A. M.) āpōk, Sar-tetū (Bāb-ifan, PERS-tānbōi, GREC-ifel ÷
Cās ma-gre. Lys thrac-he-bōs. Ptolem aē-lib-a-pāl-sy. Seleuc as.)
ROM: Jūl-inyd, Jov-otat ÷ East, West: taken Con-loze, Rom-otun:
A'lar (A. D.)-obz. Attī-flā. Gēns-ful. Od-ops. Theod-oni. Tot-lop.

i. e. The — Assyrian monarchy begun in *Ninus* (A. M.) 1748, and ended with *Asarhaddinus*, in 3235; being swallowed up by the *Babylonian*, which ended (with *Nabonadius*) in 3419, (when *Cyrus* reigned over all Asia) so the kingdom was translated to the *Persians*: from whom (by the conquest of *Darius Codomannus*) in 3617, *Alexander* translated it to the *Grecians*: after whose Death, in 3625, it was (÷) divided (after the confusion of a few

years) among four of his followers. *Cassander* had *Macedon* and *Greece*: *Lysimachus* had *Thrace*, with those parts of Asia, that border on the *Bellefont*, and the *Bosphorus*: *Ptolemy* had *Aegypt*, *Libya*, *Arabia*, *Palestine*, and *Coelesyria*. *Seleucus*, all the rest of Asia.

The — Roman monarchy begun in *Julius Caesar*, in 3902; and ended in *Jovian*, in 4313: after whose death it was (÷) divided into the *Eastern*, and *Western* empires: the former of which ended

ended by the taking of Constantinople (under Constantine Palaeologus) in 5402; the latter by the taking of Rome (under Monorius) in 4359, A. D. 410, by Alaric, king of the Goths: after whom it was overrun, and ravaged by Attila, king of the

Huns, in 431; by Genferic, the Vandal, in 435; by Odoacer, king of the Heruli, in 476; by Theodoric, king of the Ostrogoths, in 493; by Totilas, the Ostrogoth, in 547.

bodies of)

WAR

(soldiers

R] Déc-by. Cen-azy. Man-eg. Turm-ig. Cohor-aug. Legi-auth. Ph-eith.
E] Comp-uz, ig. Squad-ag, eg. Ba-ig, eig. Brigad-ath, bag. Reg-ig, auth.

1. The ROMAN Legion consisted of (at a medium) 6000 men: though the number was different, at different times, from 3000 to 6666. And, in proportion, the other bodies, viz. Decuria, 10. Centuria, 100. Manipulus, 200. Turma, 300.

Gobers, 600. Phalanx, 8000.

2. An ENGLISH Regiment is from 300 to 6000 men. And, in proportion, the other bodies, viz. Company, 50-300. Squadron, 100-200. Battalion, 500-800. Brigade, 1000-1100.

Natural]

Physics

[Philosophy

ANNUITIES

their value, for several ages of life

A-bz, dei¹. Az-bi-fo. Ez-bē-pei. Iz-bā-pe. Oz-āz, ūp. Ol-n, oub.
Uz-ou, eb. Ul-k, ub. Auz-oi, sy. Aul-āu, lo. Oiz-l, id.

1 i. e. for (A) 1 year of age, the value | purchase. And so of the rest. V. Hal-
of an annuity is (bz, dei) 10, 28 years | ley, ap. Lowthorp. vol. 3. p. 669.

ARKS

of Noah, and of the Covenant or testimony, their dimensions in Cubits
(Cov) L-e, re. Br-āre. D-a, re (NOAH) L-ig. Br-uz. D-iz: for Birds
[-eg, Qu-ag.

i. e. The Ark — of the COVENANT was a sort of Chest in Length, Breadth, Depth, $2\frac{1}{2} : 1\frac{1}{2} : 1\frac{1}{2}$. — of NOAH was a sort of Ship, 300 : 50 : 30 : sufficient to hold

(with food, &c.) all kinds of Birds (viz.) 200; Quadrupeds, 100. V. Gen. 6. 15. Exod. 25. 10.

its height, weight]

ATMOSPHERE

[elasticity, &c.

Atmosphere (HIGH miles-oz¹) on a foot-square presses esauz pounds;
On 15 foot (for a man) runs-al: when least, run-a, re less²:
WEIGHING as 1 — to (water) eig — to (mercury) azth eig³.
COMPREST, on Earth, to atpann⁴; by Art, 60 times more, to kesboz.

1 as appears by a calculation, made by M. de la Hire, from the crepuscula.

2 as appears by calculations made from the Torricellian experiments. V. Jurin, ap. Varen. 1. 6. 19. 7.

3 i. e. The weight of air compar'd to that of Water, is as 1 to 800. &c. V. Hauksb. exper.

4 i. e. The common air we breathe, near the surface of the earth, is compress'd by the bare weight of the incumbent atmosphere, into a 13769th part of the space it would take-up, were it at liberty. V. Boyle, ap. Wallis. hydrost. 13. Philos. trans. n. 181.

of matter]

DIVISIBILITY

[actually great

By great EFFLUVIA, in a long time, bodies lose but a small weight¹.
Candle, an inch, converted to LIGHT — gives parts a nonillion².

1 as is evident in perfumes, &c.

2 At which rate there must fly out of it, as it burns, in the second of a minute, 418.660,000,000,000,000,000,000,000,000,000,000 particles: vast-

ly more than 1000 times a 1000 millions the number of sands the whole earth can contain; reckoning 10 inches to 1 foot, and that 100 sands are equal to 1 inch. V. Niewent. rel. phil. vol. 3. p. 858.

DUCTILITY

[of bodies]

DUCTILITY

[very great]

Microscopical SPIDERS ¹ spin, at-a-time, at least, threads-*auth*.
GLASS may be drawn ² as a web, and knit to the 4th of a line space ³.
GOLD, on Silver-wire, is drawn ⁴ to the part of an inch-bom.

¹ i.e. Such as are not visible but by a microscope.

² "as fine as a spider's web:" but not long enough to be woven.

³ i.e. so, that the space in the middle of the knot shall not exceed one 4th of a line, or one 48th of an inch.

⁴ "to the 14-millionth part of an inch, in thinness:" and yet is so perfect a cover to the silver, that there is not an aperture to admit alcohol of wine (the subtlest fluid in nature) nor even light itself, Reaumur.

[from Water]

EVAPORATION

[its Quantity]

FOOT-square, by heat, in a day, *evaporates* half of a wine pint ¹:
Só, Medi tuns-*udkym* ²; near a third more than's brought by the rivers ³.

¹ according to experiments made by Dr. Halley, ap. *Miscell. curios.* vol. 1. To which it may be added, that the winds do sometimes carry-off more than rises by heat.

² estimating the *Mediterranean* at 40

degrees long, and 4 broad.

³ V. Rivers. and, consequently, from the whole watery surface abundantly enough to furnish all the dews, rains, springs, rivers, &c. that are convey'd into the ocean.

[life; marriage]

MAN

[parts, perspiration]

LIVE, out of *ag*, but—at *Aú*, so ¹—at *As*, *fy*—at *Es*, *bü*—at *Is*, *bau*
 & — at *Os*, *áz* — at *Us*, *au* — & — at *Aus*, *i* — at *Ois*, *a*.

MARR. *a* in *ázf* ²: *bir-f* ³ (to *bür* as *a, au* to *a* ⁴) *máles-bo* to *sem-at* ⁵.

BONES-eni. **MUSCLES-len.** **TEETH-id**—**BLOOD** as *ag* to *aany* ⁶,
Béats, in an hour, times-*óth*: and an ounce, at a time, is discharged ⁷:

52 feet in a minute; as *fépt-ag* to 1 in the extremes ⁸. [coverd)
PERSPIRE through póres (*belth*-whereof by one grain of sand may be
 5 parts of 8 (a days food) from hours 5, after méals, to the 12th, 3 ⁹.

¹ i.e. Of the children born, out of 100, there are living, at 6 years of age, but 64. And so of the rest. V. Halley, ap. Lowthorp. vol. 3. p. 669. —NB. On observations of this nature, drawn from the bills of mortality, is computed the value of annuities for different ages of life. V. Annuities.

² i.e. 1 in 104 *Marry*. King.

³ i.e. Marriages, one with another, do each produce 4 *Births*. Derham.

⁴ i.e. *Births* to *Burials* are as 1,6 to 1. Derham.

⁵ i.e. *Males*, born, to *Females*, are as 14 to 13. Graunt.

⁶ i.e. In a body, weighing 160 pound,

100 thereof are *Blood*; understanding thereby not only the fluid contained in the veins and arteries; but also that in the lymphæducts, nerves, and the other vessels, secreted from it, and returned into it. Keil.

⁷ i.e. 250 pound in an hour; at the rate of the whole mass, in 24 minutes.

⁸ i.e. The blood is driven out of the heart into the great artery with a velocity, which would carry it 52 feet in a minute: a velocity to that of its motion in the remotest branches, as 100 septillions [7th period] to 1.

⁹ Within 5 hours after eating, there is perspir'd about 1 pound; from the 12th to the 16th scarce half-a-pound. Sanctorius.

[the quantity of]

RIVERS

[their waters]

At Kingston-bridge, **THAMES** (yards Broad-*ag*, Deep-*i*) 2 mile an hour
 tuns-*exm* *igth* in a day; *rh e ti po ni do nieft nieper akdoim* ¹. [Runs ¹:

¹ in a day, 48 mile, or 84,480 yards; which multiplied by (3 times 100, the profile of water at the bridge, viz.) 300 yards, gives 25,344,000 cubic yards of water, i.e. 20,300,000 tuns.

² The most considerable rivers, that fall into the *MEDITERRANEAN* sea, are the *Rhone*, *Ebro*, *Tiber*, *Po*, *Nile*, *Don*, *Nieffyr*, *Nieper*. Each of these is supposed

to carry-down 10 times as much water as the Thames (not that any of them is so great: but so to allow for the other lesser rivers that fall into that sea) Now the water of the Thames being computed, as above, at about 20,300,000 tuns; the 9 rivers aforesaid will amount, each, to 203,000,000; in all, 1,827,000,000 tuns. V. Evaporation,

THE END.

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